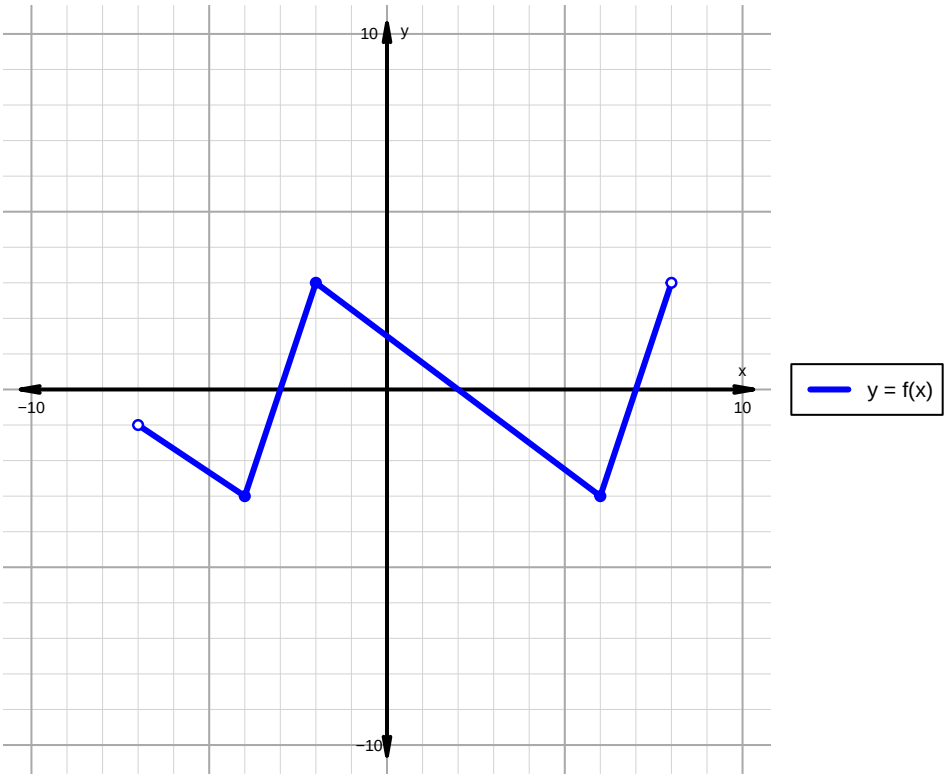
Name: Date:

## Intervals, Transformations, and Slope Solution (version 97)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-3, 2) \cup (7, 8)$ |
| Negative | $(-7, -3) \cup (2, 7)$ |
| Increasing | $(-4, -2) \cup (6, 8)$ |
| Decreasing | $(-7, -4) \cup (-2, 6)$ |
| Domain | $(-7, 8)$ |
| Range | $(-3, 3)$ |

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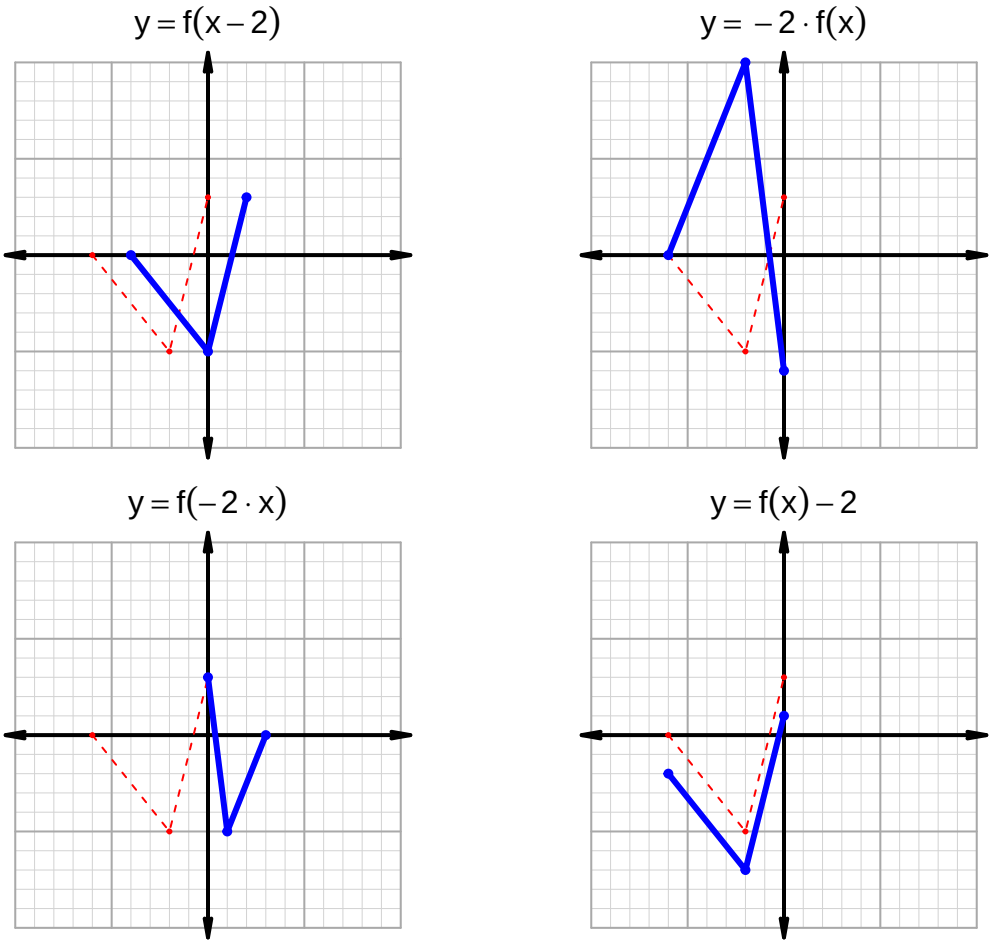
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 11$ and $x_2 = 92$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 11 | 38 |
| 38 | 92 |
| 83 | 11 |
| 92 | 83 |

$\frac{g(92)-g(11)}{92-11} = \frac{83-38}{92-11} = \frac{45}{81}$

The greatest common factor of 45 and 81 is 9. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{5}{9}$$